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TNO report

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**Using the Euclid RTP11.13 Repository in the SEC
environment**

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Toepasbaarheid

De gemaakte erratalijst van de installatieprocedures van de Euclid RTP 11.13-tools is voor alle NATO-landen die de software willen gebruiken beschikbaar. Er is onderbouwing gekomen voor de noodzakelijke verdere ontwikkeling van de tools. Dit zal onder meer in de NATO-werkgroep MSG042 naar voren worden gebracht.

Een van de drie hoofdtaken die in het kader van de uitvoering van het KL Modeling en Simulation-beleid in 2004 en 2005 door het KL Simulatie Expertise Centrum (SEC) is gedefinieerd is het inrichten van een KL Modelling & Simulatie Repository. Hiervoor gaat de voorkeur uit naar de Repository met bijbehorende tools die ontwikkeld zijn in het Euclid RTP 11.13-programma. Deze Repository zou binnen de NATO de standaard kunnen worden. Echter bij het SEC is een installatie nog niet gelukt. TNO Defensie en Veiligheid, locatie

Beschrijving van de werkzaamheden

Voor de Euclid RTP11.13 Repository en een aantal tools is een erratalijst opgesteld voor de installatieprocedures. Deze lijst is beschikbaar gesteld aan het SEC en aan andere potentiële gebruikers van de Euclid RTP11.13 Repository. Met behulp van deze lijst is ook bij het SEC een succesvolle installatie uitgevoerd.

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Abbreviations

ACT	Asset Characterisation Tool
COTS	Commercial Off-The-Shelf
DBMS	Database Management System
DIS	Distributed Interactive Simulation
DOS	Disk Operating System
DTD	Document Type Definition
DVD	Digital Versatile Disk
EUCLID	EUropean Cooperation for the Long term In Defence
FEDEP	Federation Development and Execution Process
FC&I	Federation Configuration & Initialisation
FCT	Federation Composition Tool
GUI	Graphic User Interface
GOLM	Geavanceerde opleidingen Leermiddelen (hi-fidelity training simulators)
HLA	High Level Architecture
HTML	Hyper Text Mark-up Language
J2EE	Java 2 Platform, Enterprise Edition
JDK	Java Development Kit
M&S	Modelling and simulation
NATO	North Atlantic Treaty Organisation
OMT	Object Model Template
PC	Personal Computer
PDF	Portable Document Format
RAC	Repository Access Client
RNLA	Royal Netherlands Army
RTP	Research and Technology Program
SA	Simulation Asset
SAMD	Simulation Asset Model Dimension
SE	Synthetic Environment
SEC	Simulation Expertise Centre
SEDEP	Synthetic Environment Development and Exploitation Process
SOAP	Simple Object Access Protocol
TNO	Netherlands Organisation for Applied Scientific Research
URL	Uniform Resource Locator
XML	Extensible Mark-up Language

1 Introduction

The Simulation Expertise Centre (SEC) of the Royal Netherlands Army (RNLA) has the task to ease the use of simulation throughout the RNLA. As part of the RNLA Modelling and Simulation (M&S) policy, three main tasks are defined by the SEC:

- Set up of a RNLA Modelling and Simulation Repository;

- Put the High Level Architecture (HLA) standard into operation;

- Development and organizational embedding of Verification and Validation.

To implement the Modelling and Simulation Repository the SEC preferred the use of the Repository developed in the Euclid RTP 11.13 programme.

The aim of the Euclid RTP 11.13 programme was to develop a process and tool suite to simplify and speed-up the development of synthetic environments. One of the main results was the development of the Synthetic Environment Development & Exploitation Process (SEDEP), which covers the complete lifecycle of SE specification, production and operation. The other main focus of work was the development of the SE Development Environment concept, which also includes the tool set to support the process. For each of the tools a complete set of documentation has been produced along with a working prototype of the tool. The Repository lies at the heart of the SEDEP process to support the SE lifecycle, and provides the facility for storing and sharing data about SE projects. It comprises from one to many Repository nodes (a Repository node is an instantiation of the Repository software) which, depending on its use, can be run on a single computer or be distributed over a Local or Wide Area Network. A NATO wide introduction of this Repository can allow the connection of the databases of NATO partners and thus sharing of knowledge. This future possibility explains the SEC preference for this database. As the Repository can be filled with the Asset Characterisation Tool (ACT) and searched with the Federate Composition Tool (FCT) these two tools were also necessary. However by a lack of time and specific expertise, the installation in the SEC environment was not successful. Therefore TNO was asked for support.

This document describes the effort to use the Euclid RTP 11.13 tools for a RNLA Modelling and simulation Repository. It gives an overview of the problems encountered during installation procedures and the solutions for these problems. It also gives insight in the usability of the Euclid prototype tools in a professional working environment.

2 Installation of the Repository software

All the software of the Euclid RTP11.13 tools is collected on a DVD [EUCLID]. The tools are situated in the DVD subdirectory /Euclid_Prototype_Tools/. We installed and evaluated three of the tools that seemed to be the most relevant for use by the SEC.

Repository;

Asset Characterisation Tool (ACT);

Federation Composition Tool (FCT).

2.1 Repository

Description (from [EUCLID])

The Repository lies at the heart of the Synthetic Environment Development and Exploitation Process (SEDEP) process to support the SE lifecycle, and provides the facility for storing and sharing data about SE projects. It comprises from one to many Repository nodes (a Repository node is an instantiation of the Repository software) which, depending on its use, can be run on a single computer or be distributed over a Local or Wide Area Network. Each Repository node can support as many commercially available databases as required. The Repository software being prototyped in Euclid 11.13 provides functionality for linking the Repository nodes and databases together and for preventing unauthorised access to the data. It also provides functionality to create, manipulate and search the data. The Repository is not a Commercial Off-The-Shelf (COTS) tool, it is developed within the Euclid 11.13. However, for the actual storage COTS Database Management Systems (DBMSs) can be used.

Architecture (from [EUCLID])

The primary clients to the Euclid Repository are tools supporting separate phases of the SEDEP. A SEDEP tool will connect to the Repository to achieve a specific SEDEP function using the information provided by the Repository. This is accomplished by providing functionality for the creation and use of Repository entries, which are the most granular piece of information stored in the system. Repository entries describe the SE, the scenario, the Terrain Database, the environmental conditions, Synthetic Environment (SE) assets, etc. A Repository entry can refer to other Repository entries to prevent duplication of data (e.g. an SE-design will refer to a number of assets to allow the SE to be prepared for run-time execution). Templates and guidelines are available for the development of tool specific Repository entries derived from the basic ones incorporated in the Repository software. The data of a Repository entry is described by an Extensible Mark-up Language (XML) document. The layout of the XML document is described by means of a corresponding Document Type Definition (DTD).

The Repository architecture is oriented to a 3-tier model made up of the following tiers: Client-tier, Business tier and Data tier. The three tiers are composed of the following modules:

SOAP Handler: data communication layer;

Router: determines and transfers requests to the appropriate Repository node, and applies access rights analysis to the any requests received, merges and returns the results received;

Access Controller: determines whether the user has permission to access the Repository node, to make a call to a specific Repository function;

Entry Manager: translates entry manipulation requests into Datastore Manager requests and filters the data so that any information that the user is not allowed to see is not returned;

Query Manager: handles searching of entry data directly through the Datastore Manager;

Datastore Manager: communicates with the database instances available on the Repository node (its implementation is dependant on the chosen DBMS storage technology).

The Repository software is programmed in Java which makes it possible to run it on different platforms.

Installation

The Euclid Repository was installed on a:

- HP Compaq D330
- Intel Pentium 4, 2.8 GHz
- 1 Gb RAM
- Windows 2000 Professional SP4
- Hard disk 80 Gb

The installation directory, c:\repository, is referred to as %REPOSITORY% as this convention is used in the Euclid manuals. The three tiers of the Repository are all installed on the same computer.

When installing the Repository software, the prototype nature of the software becomes painfully evident. Installing the software was hard because of much little incompleteness in the manual [REPOS]. For installation lots of (DOS) scripts are to be executed and for personalising the installation a lot of scripts have to be manually adapted.

For the installation of the Repository, the node name 'SEC' was chosen. Therefore all instances of INETI are to be changed with SEC. In this report node name is indicated with %NODE%.

All problems we encountered during the installation and solutions are gathered in an errata list, see appendix A.

2.2 Asset Characterisation Tool (ACT)

Description (from [EUCLID])

The Asset Characterisation Tool (ACT) is a EUCLID made Tool consisting of an editor which provides the user with a Graphic User Interface (GUI), to easily generate XML files containing asset characterisation data and to store them as Repository entries. The ACT is a J2EE compliant web application, thus allowing easy integration with the Repository and other RTP11.13 Tools.

The Tool is aimed at populating the Repository with high-level descriptions of SE assets which are typically used by several SEDEP Tools and at maintaining and updating them. In this respect it can be considered as a knowledge base development and maintenance application, rather than a Tool supporting a specific SEDEP step. ACT generated characterisation entries are made available, through the Repository, to the FCT to select available assets.

Architecture (from [EUCLID])

The ACT is a web based application which reads the Asset Characterisation Document Type Description (DTD) and generates a display format (GUI) allowing the user to enter characterisation data. The data are then converted into HTML and subsequently

transformed in XML format according to the DTD. The asset characterisation entry is then uploaded onto the Repository.

The ACT uses the Repository Access Client (RAC) services in the initial phase, when the DTD is read to generate the GUI, and in the final phase, when the characterisation XML file is uploaded in the Repository.

Installation

The ACT was installed on two machines, one on the same computer as the Euclid Repository, the other on:

Compaq Evo D500
Intel Pentium 4, 2.5 GHz
256 Mb RAM
Windows 2000 Professional SP4
Hard disk 40 Gb

Just like the installation of the Repository software, installing the ACT software revealed the prototype nature of the software. Again, all problems and solutions we encountered during the installation are gathered in an errata list, see appendix A. The ACT software is intended to be used on a different machine as the Repository is installed on, but the Repository software is needed on the ACT machine as well. It is not exactly clear which part of the Repository software is needed, so we installed all the Repository software. To run the Repository software on the ACT machine is not needed. Finally we got the ACT running on both the Repository machine and on a separate machine. For convenience the implementation on the Repository machine was used for the remaining period.

After installation the ACT gave a very cryptic error, which turned out to be generated by the Repository for an exceeded validity period of the certificate. These certificates have a limited period of validity and need to be replaced with new certificates every three months (see §5.13 [REPOS] on how this is done). As the Euclid tools are more than three months old, all certificates provided on the DVD have to be replaced by installation.

RTP 11.13 - Asset Characterisation Tool

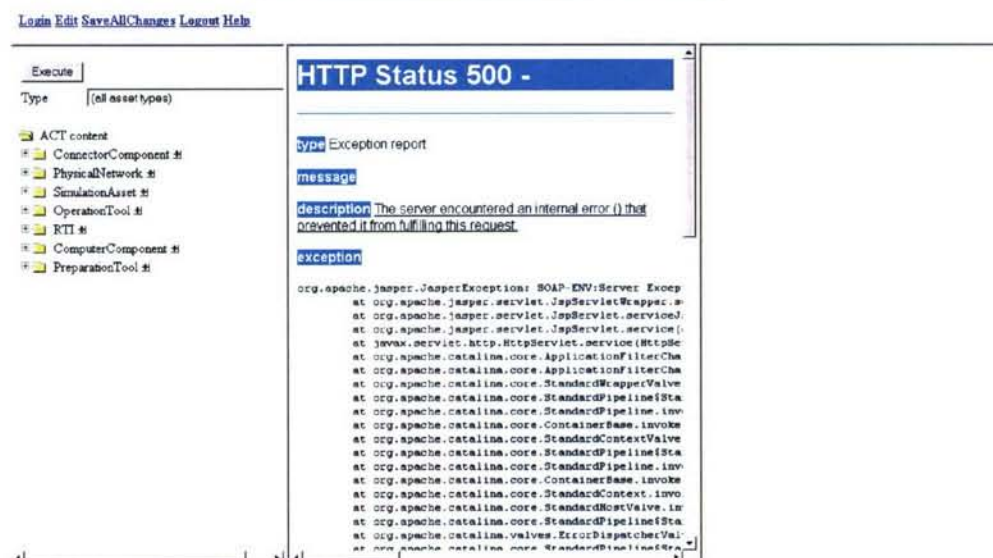


Figure 2.1 ACT error due to expired certificate.

When logging in in ACT the default email address defaultEditor@rtp1113.INETI and Node name INETI appears. To change this permanent in the chosen node name %NODE% the following file has to be edited:
 %ACT%/ACTweb/webapps/kda_se/login.jsp
 In this file, change all occurrences of INETI in %NODE%.

RTP 11.13 - Asset Characterisation Tool

[Login](#) [Edit](#) [SaveAllChanges](#) [Logout](#) [Help](#)

Login

UserName: defaultEditor
 Password:
 Email: defaultEditor@rtp1113.SEC
 Node name: SEC

Login

Figure 2.2 ACT login screen.

2.3 Federation Composition Tool (FCT)

Description (from [EUCLID])

The Federation Composition Tool (FCT) assists the SE developer in creating the Federation Design, based on the output of SEDEP Step 1 and 2 and Asset Descriptions in the EUCLID RTP 11.13 Repository. The FCT contains a set of integrated capabilities for both the selection of simulation assets and the composition of these assets into a hierarchically structured HLA federation. In particular, the FCT supports the specification of the federation design, the traceability to requirements, the search and assessment of suitable Repository assets, and the documentation of federation agreements. Furthermore, the FCT is a Euclid-made tool that is linked to two sub-tools. The first is a COTS based tool to create Federation Bridges and the second one is a Euclid-made tool to create a partial Federation Configuration & Initialisation (FC&I) file. In addition, the FCT uses other specialised design tools when applicable, such as a Visual OMT, Rational Rose (to view Conceptual Models), and a PDF viewer.

Architecture (from [EUCLID])

The Federation Composition Tool supports all steps in the highly iterative composition process, which roughly consists of five phases: (1) present the output from SEDEP Step 2 and allow the user to create and refine the Federation Design architecture; (2) support the user in formulating queries to search for assets in the Repository and retrieve the results from the Repository; (3) support the user in comparing and selecting assets based on their descriptions and whether the federation design remains consistent; (4) support the user in creating federation bridges for complex federates; (5) support the user in creating a partial FC&I file by extracting data from the federation design. The FCT uses the output from SEDEP Step 2 (consisting of Federation Scenario, Federation System Requirements and Federation Conceptual Model) and the Asset Characterisations that reside in the Repository. The output of the FCT is a Federation Design Specification including Asset Modification Descriptions, Federation Bridge Specifications, and Federation Agreements.

Installation

Like the ACT, the FCT was installed on two machines, one on the same computer as the Euclid Repository, the other on the one also used for the FCT. Like the other tools, the FCT is a very prototypical tool. For getting the installation done, some scripts had to be edited. Again, all problems and solutions we encountered during the installation are gathered in the errata list in appendix A.

After installing the FCT, the software would start, but when connecting to the Repository it failed because of wrong user, passwd combination. We found out that the user and password are hard coded in the FCT software. It uses `defaultEditor@rtpl113.INETI` instead of `defaultEditor@rtpl113.%NODE%` where `%NODE%` is the name of the node chosen when installing the Repository (SEC). Because all the software code are also available on the DVD [EUCLID], we were able to change every instance of `INETI` in the source code (see appendix A) and create a new build.

When rebuilding the FCT the Java Development Kit (JDK) had to be replaced: The JDK was installed in its default location, `C:\Program Files\`. As this location contains a space, the build (DOS) scripts didn't function properly.

After the newly build FCT was installed in the subdirectory `c:\fet\`, the software could connect to the Repository. When examining the contents of the Repository with the FCT, the Repository seemed empty. Starting the ACT to examine the contents didn't bring the content back, in fact the ACT was unable to find or add any assets. The only solution seemed to clean up the Repository (see § 5.8.4 [REPOS]), but after filling it with content with the ACT, the FCT would again empty and lock the Repository.

So the FCT has hard coded user password and messes up the Repository and therefore is unusable as a tool to search the Repository.

3 Extension of the Repository asset characterisation

The Euclid RTP 11.13 Repository is delivered with an asset characterisation for Simulation Assets [ASSETS]. An overview of the attributes for this asset characterisation is given in Appendix B. The ACT, as described in §2.2, is based on this characterisation.

For using the Repository within the SEC environment, the Repository shall be filled with information on the simulators and simulations of the RNLA and of TNO. For information of simulators and simulations of the RNLA the basis is formed by an inventory made of 'Geavanceerde opleidingen Leermiddelen' (GOLM, hi-fidelity training simulators), done in the project 'Familievorming simulators KL' [FAM]. The question list used in this project to obtain information is outlined in Appendix C. To include the GOLM database in the Euclid RTP 11.13 Repository, the attributes of the GOLM database must be mapped on the attributes of the Euclid RTP 11.13 Repository. This mapping is presented in the last column of appendix C.

It can be seen that a lot of information out of the GOLM database can't be mapped on a field of the pre-defined Euclid Asset Characterisation used in the Euclid Repository. Also, not all information demanded in the Euclid Asset Characterisation is provided by the GOLM database. The following mismatches exist:

- The Euclid RTP 11.13 Asset Characterisation is based on separate simulation assets. A hi-fidelity training simulator often consists of more elements, like a simulator, a scenario generator, an instructor station etc. Therefore hi-fidelity training simulators must be split into a number of simulation assets for the Euclid RTP 11.13 Repository. For reuse of elements, this division is desirable. But the Repository does not provide information on the composition of the whole simulator, thus obscuring the coherence between these elements.
- The Euclid RTP 11.13 Asset Characterisation is created very specifically for HLA assets. It gives opportunity to describe the HLA interface precisely, but lacks the possibility to describe other interfaces like DIS.
- The Euclid RTP 11.13 Asset Characterisation does not give the possibility to add more than one point of contact. It lacks the possibility to indicate who is responsible for maintenance, for use, who is the owner, and how many of these assets are owned.
- The Euclid RTP 11.13 Asset Characterisation is created to lay down specific simulation and simulator properties. There are no fields for extra information that is specific for a hi-fidelity training simulator like targets of practice, number of students, auto instruction etc.
- The Euclid RTP 11.13 Asset Characterisation contains no information on validation and accreditation of a model.

To store the information of the GOLM database in the Euclid RTP 11.13 Repository it must be possible to extend the asset characterisation of the Euclid RTP 11.13 Repository. The aim of the Euclid RTP 11.13 Repository is to connect European repositories together. Therefore it is desirable to extend the asset characterisation rather than to change it. As the current asset characterisation is meant as a prototype, changes can be suggested to the user community.

Figure 3.1 shows the SimulationAssets Characterisation Top Level Data Model [ASSETS]. In here the SASimulation class contains the HLA specific information. On this level a number of classes can be added containing the case specific information.

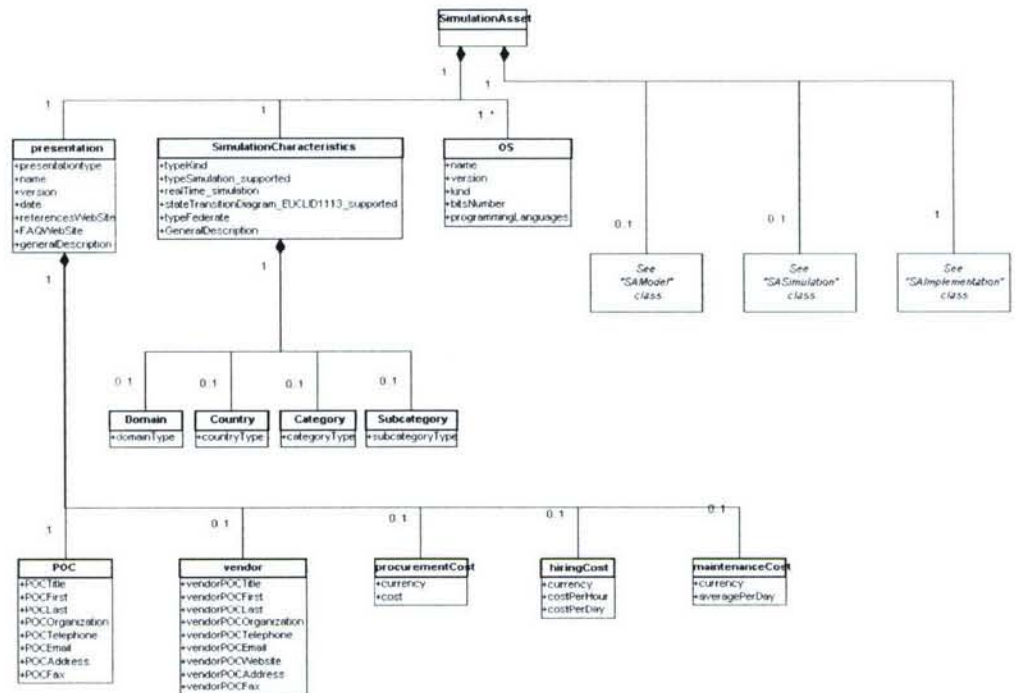


Figure 3.1 SimulationAssets Characterisation Top Level Data Model [ASSETS].

An example of how classes can be added to the Top Level Data Model of Figure 3.1 to make it usable for the GOLM information is:

- **SADIS**
containing information on the DIS implementation;
- **SAQuality**
containing information on Quality issues;
- **SADidacticalAspects**
containing GOLM specific information on didactical components;
- **SAInstructional**
containing GOLM specific information on instructional components.

Table 3.1 information on the DIS implementation.

SADIS			
Nr	Attribute	Information	Presence*
D1	ProtocolVersion	Version(s) of the supported DIS Protocol, e.g. 5, 6	R
D2	ExerciseID	Number of the DIS Exercise e.g. 21, User definable	R
D3	UDPPort	Number of the DIS Port e.g. 3000, User definable	R
D4	TimeStamp	Absolute, Relative or User definable	NE
D5	SiteID	Number or User definable	N
D6	ApplicationID	Number or User definable	N
D7	EntityID	Number or User definable	N

Table 3.2 information on Quality issues.

SAQuality			
Nr	Attribute	Information**	Presence*
K1	TaskAnalysis	Bestaat de basis van het programma van eisen uit een taak en/of trainingsanalyse?	N
K2	Verification	Heeft er een toetsing aan specificaties plaatsgevonden (verificatie) If Yes: author and report	N
K3	Accreditation	Heeft er toetsing aan normen plaatsgevonden (accreditatie) If Yes: author and report	N
K4	SimSubjective Validation	Heeft er een subjectieve validatie van de simulator plaatsgevonden? Zo ja, was deze oppervlakkig of gestructureerd (eventueel auteur en rapport)	N
K5	SimObjective Validation	Heeft er een objectieve validatie van de simulator plaatsgevonden? Zo ja, was deze oppervlakkig of gestructureerd (eventueel auteur en rapport)	N

Table 3.3 GOLM specific information on didactical components.

SADidacticalAspects			
Nr	Attribute	Information**	Presence*
A1	TrajectoryPlace	Wat is de plaats in het leertraject 1=beginner; 2=gevorderd; 3=conversie; 4=refresher	NE
A2	SimulatorKind	Wat voor soort simulator is het 1=bediening; 2= psychomotorisch; 3=procedure; 4=cognitief; 5=team	NE
A3	TrainedUnit	Welke eenheid wordt op de simulator getraind 1=individu; 2=bemanning; 3=peloton; 4=team; 5=bataljon; 6=brigade; 7=divisie; 8=legercorps	NE
A4	SimulationDetail	Wat is het detailniveau van de simulatie 1=fysisch; 2=systeem; 3=eenheid; 4=gevecht; 5=operatie; 6=campagne	NE
A5	FunctionalArea	Wat is het functiegebied 1=commandovoering; 2=doelopsparing; 3=genie; 4=gewonden verzorging; 5=logistiek; 6=luchtverdediging; 7=manoeuvre; 8=verbindingen; 9=vuursteun 10=Optreden van verbonden wapenen	NE
A6	LessonGroup	Wordt er klassikaal of individueel lesgegeven op de simulator	NE
A7	TaskPart	Is de simulator een full task of part task trainer	NE
A8	SimulatorBuild	Is de simulator een generieke simulator, multi- model of een specifieke simulator?	NE
A9	SimulatorFidelity	Is de simulator een low-end, medium-end of high- end simulator?	NE
A10	InstructionTarget	Wat zijn globaal de leerdoelen	N
A11	IntructionPlan	Hoe ziet het ontwikkelingsleerplan eruit? (primitief of uitvoerig)	N
A12	Evaluation	Hoe vindt prestatiebeoordeling plaats? Door de instructeur/observertrainer of automatisch of allebei?	NE
A13	EvaluationMoment	Wanneer wordt de prestatie van de leerling beoordeeld, tijdens de training of achteraf?	NE
A14	ScenarioAdjustment	Zijn de scenario's tijdens de training te beïnvloeden?	NE
A15	TraineeYearAmount	Hoeveel leerlingen trainen per jaar op de simulator?	N
	TraineesPerSim	Maximaal aantal leerlingen per simulator per les	N
A16	SimsPerInstructor	Hoeveel simulatoren kan een instructeur tegelijkertijd bedienen?	N
A17	TraineeSimTime PerCourse	Hoeveel lestijd besteed een leerling/cursist per cursus op de simulator?	N
A18	TraineeSimTime PerCourseTime	Hoeveel procent van de cursustijd zit de cursist in de simulator?	N
A19	TraineeAttendees PerCourse	Hoeveel leerlingen kijken er mee per les?	N
A20	InstructorTraining Time	Hoelang duurt de opleiding voor instructeurs om op de simulator les te kunnen geven?	N

Table 3.4 GOLM specific information on instructional components.

SAInstructionalAspects			
Nr	Attribute	Information**	Presence*
I1	ResultRegistration	Hoe vindt de registratie van lesresultaten plaats? Nee, schriftelijk, handmatige invoer, automatisch (zero or more)	N
I2	StatisticalProcessing	Vindt er een statische bewerkingen van de lesresultaten plaats? Ja, Nee	NE
I3	AutomaticEvaluation	is er automatische prestatiebeoordeling en feedback? Nee, primitief, uitvoerig	NE
I4	AutoInstruction	Is er auto instructie? Nee, primitief, uitvoerig	NE
I5	DiagnosticSystem	Is er een diagnose systeem? Nee, primitief, uitvoerig	NE
I6	BirdsEyeView	Heeft de instructeur beschikking over een bird's eye view? Ja, Nee	NE
I7	Malfunctions	Kunnen er malfunctions ingevoerd worden? Nee, Door instructeur, Door scenario	NE
I8	RecordReplay	Heeft de simulator een record en replay functie? Ja, Nee	NE
I9	ClassicalDebrief	Vindt er een klasmatige debriefing plaats? Ja, Nee	NE
I10	Scenario Management	Hoe is het scenario management? Nee, primitief; uitvoerig	NE

- * Presence of a specific attribute may be: R = Required
N = Not Required, optional
E = Enumerated list

- ** As the 'Familievorming simulators KL' project was performed in Dutch, the information in this list is also in Dutch.

To implement these new classes with attributes in the Euclid RTP 11.13 Repository several files have to be edited:

- The document type definition (DTD) of the Repository has to be extended:
%ACT%/ac_dtd/RTP11.13-Alenia-We3.1-AssetCharacterization-1-5-5.dtd.
This file must also be uploaded to the Repository, see §4.1 of [ACT].
- To be able to create a new asset with these attributes, all attributes must also be added to the record templates:
%ACT%/ACTweb/webapps/kda_se/data/scratch_data
- Also the ACT must be able to show this data. To make this possible, the necessary attributes must be added to the following files:
 - %ACT%/ACTweb/webapps/kda_se/data/act.xsd
 - %ACT%/ACTweb/webapps/kda_se/data/treeViewKDA.xml
 - %ACT%/ACTweb/webapps/kda_se/data/viewKDA.xml

The attributes added to the Euclid RTP 11.13 Repository asset characterisation are now available for new assets. It is not worked out, however, how the extra attributes can be added to records already in the database.

Figure 3.2 shows a screenshot of the ACT with the added classes and attributes.

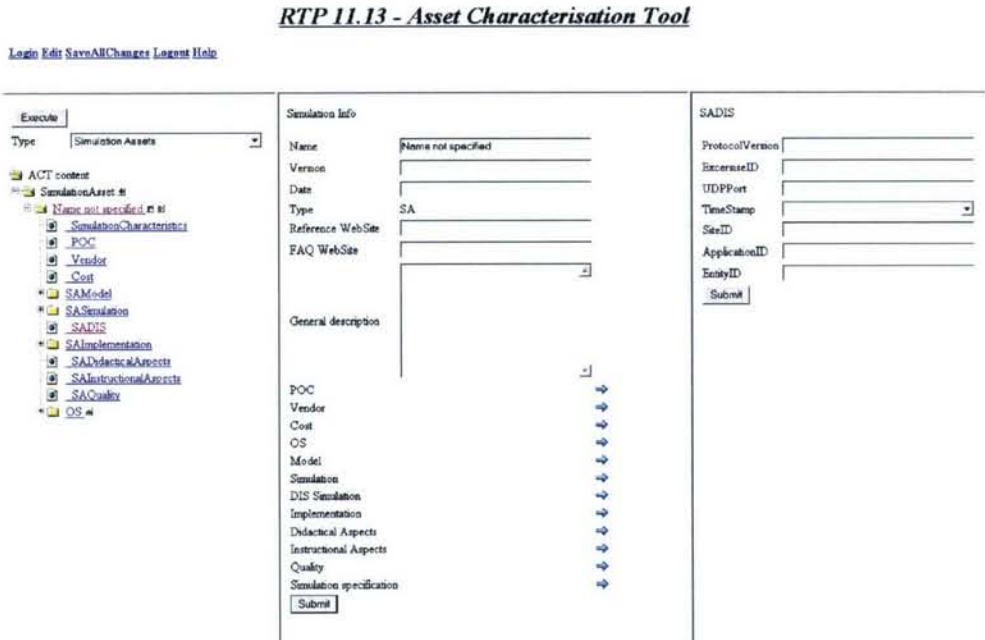


Figure 3.2 Asset Characterisation with added attributes.

As seen in Appendix C, not all information in the GOLM database is available in the Euclid RTP 11.13 Repository and not all information needed to fill the Euclid RTP 11.13 Repository is represented in the GOLM database. As the Euclid RTP 11.13 Repository was intended to be a generic tool and the GOLM database was intended to be used specifically for one purpose we can conclude that no matter how good your intentions are, the information stored in the Repository will probably always be incomplete for your specific purpose. Therefore the least thing the Repository should contain is a global description of the asset and a link (whether it be a meta-link or a point of contact) on where to find additional information. As additional information is gathered it can be useful to add this to the Repository (your knowledge base). Therefore the asset characterisation should be easily extendible. The Euclid RTP 11.13 Repository

contains this information and is extendible, though not easily and the extension of existing entries is unclear. Also there are so many (required) attributes for the Euclid RTP 11.13 Repository that the initial fill will be a challenge. Making the required attributes optional and leaving the attributes empty when no information is present will leave the filled attributes scattered over the record.

4 Experience with the Repository tools

In this chapter, the experiences encountered in using the Euclid Repository and related tools, is described.

The ACT client was used to fill the Repository with content. The ACT is launched from a web browser by opening the URL `http://%Servername%:8080/kda_se` (where %Servername% is the host name or IP address, where the ACT server runs on). For more details on the use of ACT see [ACT].

Several different browsers were tested:

- Netscape 4.79
- Netscape 7.0
- Mozilla Firefox 1.0
- Internet Explorer 5.0

In Netscape 4.79 the search part (§5.4.2.1 [ACT]) and tree view part (§5.4.2.2 [ACT]) in the left hand frame are displayed together, see Figure 4.1

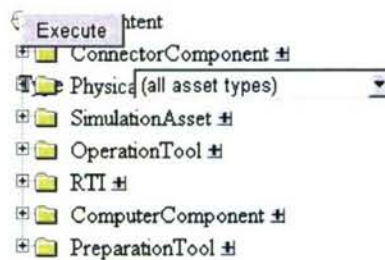


Figure 4.1 Left hand frame of ACT in Netscape 4.79.

In Netscape 7.0 and Mozilla Firefox 1.0 the mixing of the search part and tree view part in the left hand frame is solved, but in the tree view part the tree is always fully expanded. Clicking the collapse button doesn't work. This gives a very long left hand frame, even with only one asset entered, thus is not a workable solution

With Internet Explorer 5.0 the ACT acts as it is supposed to do. Internet Explorer is the default browser in the SEC environment so this will not impose a problem. For the TNO environment however Mozilla Firefox is the default and thus an additional browser would be preferable here.

According to the ACT user manual (§5.5 [ACT]) you have to launch the Edit function by left-clicking on the menu item available in the Top frame. But when you click this function, you don't get any feedback on whether you are in edit mode or not. This lack of feedback will increase the possibility of a user forgetting to launch this Edit function. In fact, when you not launch the Edit function, you still can add or edit records. Thus the Edit function seems unnecessary.

When adding a new asset or editing an existing asset, below the fields used to fill in the attributes a 'Submit' button is available. By left-clicking this command the data

previously entered are prepared by the ACT for being saved into the XML entry (§5.4.3 [ACT]). When the User has completed the data input and wishes to save the data into the XML entry, the function `SaveAllChanges` available in the Top frame must be left-clicked. This two step way of saving data is very confusing and asking for mistakes. A user is likely to forget the `SaveAllChanges` function and then all data entered will not be saved.

When we have more than one asset entered in the Euclid RTP 11.13 Repository and we delete an arbitrary asset, all others seem to be disappeared as well. This data reappears only after clicking the `SaveAllChanges` function.

In Appendix B the attributes of the Euclid RTP 11.13 Repository are mapped on the attributes of the GOLM database. In the fourth column of Appendix B the presence of the Euclid RTP 11.13 Repository attribute is presented. In the fifth (last) column the mapping on the GOLM attributes is presented. Comparing the information in these two columns shows that not all required attributes of the Euclid RTP 11.13 Repository are covered by attributes from the GOLM database. But when we were entering test data in the Euclid RTP 11.13 Repository and deliberately left out required data, no error was given. We could save and retrieve the record. Somehow the test on not entering obliged data fails. For SEC this is convenient as this implies that filling the Euclid RTP 11.13 Repository with data from the GOLM database would not necessitate collecting this required data in advance.

When adding records to the Repository, the ACT (or the Repository) is responding slower and slower. After adding more than 10 records, the PC on which the ACT client runs from (not the PC containing the Repository), gave the message that a script on the Repository machine was causing the web browser to run slow, see Figure 4.2. On this message window, clicking NO would cause the script to finish, while clicking the default YES would abort the script and thus not finishing its task.

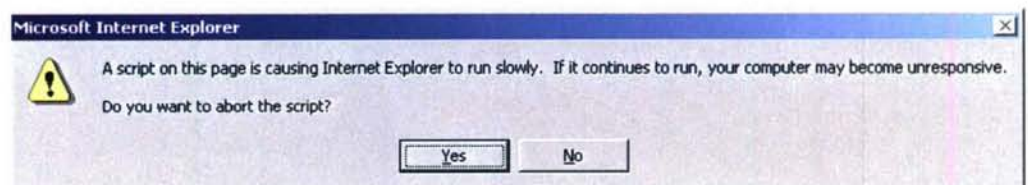


Figure 4.2 Message window caused by Repository.

When the software is operational for more than three months, the certificates are expired. For the user, there is no clear indication about this expiration. When the user tries to log in on the ACT, he gets an error message:

'Authentication Error. Invalid username, password or email. Please try again.'

This message does not say the authentication failed because the certificates are wrong or expired.

After creating and installing new certificates the administrator has to restart the Repository to activate the new certificates. This implies that all users have to be logged out. For the current Repository software this does not imply a problem because the Repository prototype is single user, single site (§12.5, [REPOS]), but the essential restart of the software after a certificate renewal is inconvenient. The fact that the Repository software does not support entry locking is also a problem in a multi user environment because entry locking prevents problems caused by one entry to be modified by two users at the same time.

5 Conclusions

The installation and configuration of the tools provided by the Euclid RTP 11.13 consortium is very laboriously. As most of the software is provided as prototype this is no surprise. But for using this software in a professional working environment it is too time-consuming and depends too much on a high level of expertise.

The Repository prototype doesn't provide entry locking thus making it hard to use in a multi user environment.

When using the software, error messages are very cryptic or missing.

Even for a modest amount of assets (in our case more then 10), the tools become very slow. This can make working with them very frustrating.

The tools are still very unstable. At some moments the Repository seemed inaccessible and we had to reinstall the database. At other moments the Repository was empty and only inserting a new asset would bring back all data.

There is still no vendor creating a professional release for one of the Euclid tools. Within the Euclid consortium the follow-on development of the tools is also unclear. However, the tools have a high potential and further development should be stimulated.

The Federation Composition Tool (FCT) was intended to be used for searching the Repository. But the FCT isn't functioning properly. This leaves the ACT as the tool for getting information out of the Repository which is not its designated purpose. Because of this, the Repository is hard to search through and it's hard to compare assets with one another.

Within the SEC environment, the total Euclid RTP 11.13 toolset is to big to start with. Beginning with only the Repository and the ACT would be wise. These tools however are still a prototype and therefore are very hard to configure and unstable. Future developments of the tools are unclear. Introduction of these tools in the SEC environment would only create aversion against tools like these.

To make information on the Simulation models of the RNLA accessible it is better not to use the Euclid RTP 11.13 toolset but to start with the creation of a simple database with easy access and easy moderation capabilities. This will pave the way for a more sophisticated toolset.

6 References

- [ACT] Marco Fabbri et al; Asset Characterisation Tool software User Manual (SUM); RTP 11.13 consortium; Brussels; RTP11.13-ALENIA-WP3.1-ACTSUM-2.1; 23 March 2004
- [ASSETS] J.B.Guillerit et al; Characterisation of repository assets – final; RTP 11.13 consortium, Brussels; RTP11.13-TT&S SA-ALENIA-WE3.1-TN3.1c v2.1; 18 November 2003
- [EUCLID] Euclid 11.13 Multimedia DVD; version 1.0; March 2004 (<http://www.euclid1113.com>).
- [FAM] R.R. Sluimer, J.E. Korteling; Familievorming simulatoren KL: inventarisatie; TNO; Soesterberg; TM-03-A018; 16 april 2003
- [FCT] Tom Skoglund et al; Federation Composition Tool software User Manual (SUM); RTP 11.13 consortium; Brussels; RTP11.13-FFI-WE3.3-FCT-SUM-2.0; 01 September 2003
- [REPOS] Erik de Koster et al; Prototype Repository Software User Manual (SUM); RTP 11.13 consortium; Brussels; RTP11.13-DS-WE8.5-DEL8.5a-2.0.2; 02 December 2003
- [SEMT] Lukas Lundberg et al; Software User Manual (SUM) SE Management Tool (SEMT); RTP 11.13 consortium; Brussels; RTP11.13-INSTA-WE9.1-SUM-1.0; 02 October 2003

7 Signature

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A Errata list of Euclid RTP 11.13 tools

This appendix contains the problems and solutions encountered during the installation and evaluation of a subset of the Euclid RTP 11.13 tools.

All installation is done on a PC with Windows 2000.

Notice that most of the scripts used in Euclid tools are DOS script files (*.bat). This implies that using paths with spaces can cause trouble. As Windows 2000 has default "C:\Program Files" as directory path for programs, I would advise against putting any Euclid software in this directory (not even the java development kit).

A.1 Repository

The information in this paragraph refers to the pdf version of [REPOS].

§ 5.3 unpack the Repository support tools

Table 11, Installation Java Development Kit

Not only the environment variable PATH must be updated (with %JAVA_HOME%\bin), but also a system variable must be added:
JAVA_HOME = %JAVA_HOME%

To add environment variables:

click START | SETTINGS | CONTROL PANEL

click SYSTEM

choose ADVANCED

choose Environment Variables...

§5.4 Regional Settings, page 53

The requirement that the software assumes a UK keyboard layout seems odd.

The keyboard layout depends on the type of keyboard used. For example, when using a US keyboard with UK regional settings characters won't print like on the keyboard. In this example a " on the US keyboard will give a @ and a # will give a £. When leaving the keyboard settings as they supposed to the software will work fine, even with a non UK keyboard. Therefore this requirement should be removed.

§5.7.2 Host name configuration (approach 1), page 59

When installing all software on one machine, changing both Euclid_Repository_database and Euclid_Repository to 127.0.0.1 or localhost instead of the host name of that machine works fine also and gives fewer restrictions.

§5.8.3 Repository Entry Type installation, page 64

Bullet 4, initRepository.bat:

Edit line 5 of initRepository.bat:

start initEntryType.bat INETI

Change INETI in the node name %NODE% (chosen in §5.8.1)

§5.13 Generating and installing new SSL certificates, page 71

When using the Repository in combination with other Euclid RTP 11.13 tools it is essential to create a new SSL certificate. The certificates provided with the release on the Euclid DVD are already expired.

To generate a new set of certificates and keystore-files the script generateSSL.bat and setEnv.bat needs to be executed in a -further- empty directory. The documentation only states the generateSSL.bat script to be present.

A.2 Asset Characterisation Tool, ACT

The information in this paragraph refers to the pdf version of [ACT].

§4.1 Preliminary configuration, page 14

Notice the different sequence in the standard attribute value table compared to the menu on the Repository Maintenance Application.

The last bullet from this paragraph, unzip the file, has to be done in advance as the path to the DTD file contained in the zip file is needed to be entered in the "create new entry type" window of the Repository Maintenance application

§ 4.2.1 Installation without Build System, page 14

The ACT software is intended to be used on a different machine as the Repository, but the Repository software is needed on this machine. It is not exactly clear which part of the Repository software is needed, so we installed all the Repository software. Running the Repository software is not needed. Finally we got the ACT running on both the Repository machine and on a separate machine. For convenience (to save on PCs) the implementation on the Repository machine was used the remaining period.

§ 5 Main Instructions, page 17

I only got the ACT software running properly after installing a new SSL certificate (see page 71, paragraph 5.13 of the Repository Sum).

Put the newly generated client.keystore in
%ACT%/ACTweb/bin/cert

§ 5.4.2.2 left hand frame: tree view part, page 23

In Netscape 4.79 information in the left hand frame is mixed up.

In Netscape 7.0 and Mozilla Firefox 1.0 the tree is always expanded
Internet Explorer 5.0 works as intended.

Bullet 5, delete the corresponding entry

After deleting an entry in the asset list, all assets of the same type seem to be deleted: the list is empty. Restarting the Repository and the ACT doesn't help. The other entries reappear in the entry list (except for the deleted entry) after the SaveAllChanges option is clicked.

§ 5.5 Creation of a new asset characterisation entry, page 26

Bullet three

Left-clicking the Edit function doesn't give any feedback, but seems to work fine.

When logging in in ACT the default email address defaultEditor@rtp1113.INETI and Node name INETI appears. To change this permanent in the chosen node name

%NODE% the following file has to be edited:

%ACT%/ACTweb/webapps/kda_sc/login.jsp

In this file, change all occurrences of INETI in %NODE%.

A.3 Federation Composition Tool, FCT

The information in this paragraph refers to the pdf version of [SUM].

§3.1.1 Software items, page 6

WP 8 Repository Software

For the FCT to work the installation of the Repository software on the local PC is necessary. If the FCT runs on a different machine as the Repository, it is not necessary for the local installed Repository software to run. (See ACT, here the Repository software was also needed, but didn't need to run).

§3.2 Installation, page 8

Run.bat

Edit this file. Change line 5:

```
set JAVA="%JAVA_HOME%\bin\java
in
```

```
set JAVA="%JAVA_HOME%\bin\java"
```

notice the position of the quotation marks.

Edit file

%FCT%/lib/rsh.jar

com/Alenia/rtp1113/wp8/SoapHandler/SoapHandler.properties

Change line 6 and 7:

SoapHandler.url=

SoapHandler.keystore.location=

Point them to the appropriate URL and location.

The FCT will start, but when connecting to the Repository it fails because of wrong user, passwd combination:

It uses defaultEditor@rtp1113.INETI instead of defaultEditor@rtp1113.%NODE%

It is possible to overcome this by creating a new build:

Change every instance of INETI in %NODE% in the following files:

%FCT%/src/fct/datamodel/fom/MM_fom.java

%FCT%/src/fct/datamodel/RepositoryAPI.java

%FCT%/src/fct/gui/common/mainframe/hidden/menu/repository/menuitems/Connect.java

%FCT%/src/fct/gui/Phase1/federationdesign/bridge/hidden/menus/menuitems/CommitBridgeDesign.java

Run: %FCT%/build.bat

Notice that this script produces an error when the environment variable JAVA_HOME contains a space.

It is now possible to connect with the FCT to the Repository. But after the connection the Repository seems empty and the ACT can't find or add any assets. This leaves the FCT useless. No further attempts were made to make the FCT work in this environment.

A.4 SE Management Tool, SEMT

The information in this paragraph refers to the pdf version of [SEMT]

§4.3.1.1 Directory configuring, page 22

For the SEMT to work the installation of the Repository software on the local PC is necessary. If the SEMT runs on a different machine as the Repository, it is not necessary for the local installed Repository software to run. (See ACT, here the Repository software was also needed, but didn't need to run).

On the local installed Repository software the following two files need to be edited:

%REPOSITORY%/client/classes/com/Alenia/rtp1113/wp8/SoapHandler/SoapHandler.properties

Change line 6 and 7:

SoapHandler.url=

SoapHandler.keystore.location=

Point them to the appropriate URL and location.

%REPOSITORY%/setenv.bat

Change line 2:

SET REPOSITORY_DIST=

Point it to the appropriate location

§4.3.3 Starting up the SEMT, page 22

To get the ACT working from the SEMT imposed no problem (see §5.2.2 ACT).

However to get another tool, like the FCT, started from SEMT is not documented.

B Euclid RTP11.13 Characterisation of Simulation Asset

This appendix contains the Asset Characterisation of Simulation Assets according to Euclid RTP 11.13 [ASSETS]. This information is organised according to specific tables including five columns:

- The first column indicates a serial number for reference purposes;
- The second column indicates the attribute, as specified in the characterisation DTD;
- The third column describes the attribute;
- The fourth column indicates the presence of the attribute;
- The fifth (last) column gives a reference to the serial number of the GOLM database of Appendix C to which this attribute can be mapped.

Presence of a specific attribute may be: R = Required
 N = Not Required, optional
 E = Enumerated list

Because information in this Appendix is copied from [ASSETS], references within the text are to be read as references to [ASSETS].

Asset Identification
Presentation

presentation				
Nr	Attribute	Information	Pres	GOLM
1	presentationtype	Type of asset (see list in 2.1.1.1) PT, SA, OT, RTI, NC, PN	RE	
2	name	Name of the asset	R	A1
3	version	Version number of the asset	R	
4	date	Date of the version	N	
5	referencesWebSite	URL of the website containing information on the asset (if any)	N	
6	FAQwebsite	FAQ URL	N	
7	generalDescription	Description of the main goal of this asset	R	A12

Point Of Contact and Vendor information

POC				
Nr	Attribute	Information	Pres	GOLM
8	POCTitle		N	
9	POCFirst		R	
10	POCLast		R	A4
11	POCOrganisation		R	
12	POCTelephone		N	A5
13	POCEmail		R	A6
14	POCAdress		N	
15	POCFax		N	
vendor				
Nr	Attribute	Information	Pres	GOLM
16	vendorPOCTitle		N	
17	vendorPOCFirst		N	
18	vendorPOCLast		N	
19	vendorPOC Organisation		N	A7
20	vendorPOCTelephone		N	
21	vendorPOCEmail		N	
22	vendorPOCWebsite		N	
23	vendorPOCAddress		N	
24	vendorPOCFax		N	

Cost information

procurement Costs				
Nr	Attribute	Information	Pres	GOLM
25	currency	Reference currency for cost figures	N	
26	cost	Total procurement cost figure	N	
hiring Costs				
Nr	Attribute	Information	Pres	GOLM
27	currency	Reference currency for cost figures	N	
28	costPerHour	Hiring cost figure per hour	N	
29	costPerDay	Hiring cost figure per day	N	
maintenance Costs				
Nr	Attribute	Information	Pres	GOLM
30	currency	Reference currency for cost figures	N	
31	averagePerDay	This figure shall provide an average maintenance cost per day (asset availability shall refer to 8 hours / working day availability)	N	

General Information

SimulationCharacteristics				
Nr	Attribute	Information	Pres	GOLM
32	typeKind	EquipmentExpendable, EquipmentSensorEmitter, Forces, Munition, Platform, SimulationTool. See Appendix A	RE	
33	typeSimulation_supported	Live, Virtual, Constructive, Other, Unspecified	RE	
34	realTime_simulation	HardRealTime, SoftRealTime, FasterThanRealTime, SlowerThanRealTime, SelectableByUser	RE	
35	stateTransitionDiagram_EUCLID1113_supported	Yes, No	NE	
36	typeFederate	SimpleFederate (default value), ComplexFederate, Federation	NE	
37	GeneralDescription	General description of the asset	N	

Domain				
Nr	Attribute	Information	Pres	GOLM
38	domainType	Domain of operation of the simulated assets. See Appendix A	R	
Country				
Nr	Attribute	Information	Pres	GOLM
39	countryType	Country of operation of the simulated asset. See Appendix A	NE	

Category				
Nr	Attribute	Information	Pres	GOLM
40	categoryType	Category of simulated assets. See Appendix A	R	
Subcategory				
Nr	Attribute	Information	Pres	GOLM
41	subcategoryType	Subcategory of simulated assets. See Appendix A	NE	

OS				
Nr	Attribute	Information	Pres	GOLM
42	name	Full name of the Operating System	R	
43	version	Version of the Operating System	R	
44	kind	Proprietary, openSourceCustom, openSourceUnix, openSourceBSDUnix, openSourceSysVUnix	RE	
45	bitsNumber	1, 2, 4, 8, 16, 32, 64, more	N	
46	programming Languages	Assembly, Ada, Algol, C, C++, Cobol, Fortran, Java, LISP, Pascal, Perl, PL/I, etc	N	

Summary of information

SAMDIInterface				
Nr	Attribute	Information	Pres	GOLM
47	ObjectName	Name of objects	N	
48	InteractionName	Name of interactions	N	
49	SOMReference	Reference to Simulation Object Model (SOM)	N	
50	LLFormat	Low Level (LL) description of the interfaces. Reference to entry files: the format to be used is IEEE1516DIF OMT, however it is possible to use an OMT2UML translator to have a graphical view of interfaces	N	

Model

Summary of information

SAMDMModel				
Nr	Attribute	Information	Pres	GOLM
51	LinkInterfaceModel	Reference to entry files "SERelation2SOM", aimed at mapping SE Relations with terms used in the SOM	N	
52	SEElements	Names of SE Elements	N	
53	SERelations	Names of SE Relations	N	
54	CMReference	Reference to entry file "CM_UML_Representation". This file includes UML diagrams which describe the asset. In particular Class Diagram, Activity Diagram, Collaboration Diagram, Statchart Diagram and Sequence Diagram are included in this file which is XML generated by the Concept Modelling Tool in WP2	N	
55	AlgorithmDoc	Algorithm description; this information may provided either as formal language or as pseudocode language	N	
56	Consistency	Description of any known (model) aspects that may prevent the asset from running with some other assets it was not initially design to run with	R	

Database

Summary of information

SAMDDataBase				
Nr	Attribute	Information	Pres	GOLM
57	Format	Format of supported databases	N	S6 S11
58	SAMDDataBase Reference	Referenced to supported databases	N	

SASimulation				
Nr	Attribute	Information	Pres	GOLM
59	RTIVersion	Full names of the supported RTI(s) as provided by vendor, e.g. "pRTI™ v1.2 r1 build 16 for HLA 1.3"	R	
60	HLAVersion	Version(s) of HLA IF Specification supported by RTI, e.g. IEEE1516.1	R	
61	RTIBindingUsed	Language bindings used with RTI	R	

Service groups

RTIService / HLAServiceFederationManagement				
Nr	Attribute	Information	Pres	GOLM
62	createFederation	If the federate tries to create the federation or not. In any federation there must exist at least one federate that creates the federation before anyone else tries to join. Yes, No	RE	
63	createFederationNote		N	
64	phasedStartup	Indicates that the asset uses some kind of passed startup or initialisation schema, e.g. state transition using synchronisation points or interactions. Yes, No	RE	
65	phasedStartupNote		N	
66	startStop	The federate or federation has the capability to start and stop the simulation main loop and simulation time repeatedly during execution, e.g. through special HLA interactions or synchronisation points. Yes, No	RE	
67	startStopNote		N	
68	saveRestore	Indicates that the federate or federation has the capability to store its current state and to reload and resume simulation at a later time. Yes, No	RE	
69	saveRestoreNote		N	
70	logging	Indicates that the federation/federate supports logging of some kind. Yes, No	RE	
RTIService / HLAServiceDeclarationManagement				
Nr	Attribute	Information	Pres	GOLM
72	passive	Indicates that the federate is a passive listener of information and does not provide any objects or interactions to the federation. Exact description on class/attribute/interaction subscription/publication is provided in the SOM. Yes, No	RE	

RTIService / HLAServiceObjectManagement				
Nr	Attribute	Information	Pres	GOLM
73	anonymousObject	Indicates that a federate/federation register objects using pre-defined and agreed upon names. Object instance names in the federation must be unique. Yes, No	RE	
74	relevanceAdvisories	Indicates that advisories for turning updates on/off when relevant is used, e.g. when nobody is interested there is no point in sending the information. Yes, No	RE	
75	provideAttributeValueUpdate	Indicates that the federate implements the provideAttributeValueUpdate service for some attributes. List of provided attributes must be supplied. Yes, No	RE	
76	requestsUpdates	Indicates that the federate requests attribute updates when needed. List of attributes must be supplied. Yes, No	RE	
77	deadReckoning	Indicates whether dead reckoning is used or not. Exact description on update rates/heartbeat etc. is provided in the FOM/SOM. Yes, No	RE	
RTIService / HLAServiceOwnreshipManagement				
Nr	Attribute	Information	Pres	GOLM
78	acquisitionPerformance		N	
79	divestiturePerformance		N	
RTIService / HLAServiceDataDistributionManagement				
Nr	Attribute	Information	Pres	GOLM
80	regionModificationPerformances	Indicates that the federate/federation is able to use data distribution management services. Exact description on RoutingSpaces and/or Regions is provided in the FOM/SOM.	N	

RTIService / HLAServiceTimeManagement				
Nr	Attribute	Information	Pres	GOLM
81	passive	Yes, No	RE	
82	synchronisedClock	Indicates that the simulation time is synchronised with wall-clock time, e.g. the system-clock. Yes, No	RE	
83	timeStepped	Simulation time is stepped in discrete intervals of a specified length. Yes, No	RE	
84	eventDriven	Simulation time is stepped in intervals of variable length depending on when next event occurs. Yes, No	RE	
85	optimisticTimeStep	Indicates a simulation with optimistic calculation of future time-steps. Yes, No	RE	
86	timeRegulating	The federate can send time stamped messages and paces other constrained federates. Yes, No	RE	
87	timeConstrained	The federate receives time stamped messages and is paced using HLA Time Management services by regulating federates. Yes, No	RE	
RTIService / HLAManagementObjectModel				
Nr	Attribute	Information	Pres	GOLM
88	usesManagerFederateService	Indicates if a federate is able to make changes to other federates by making RTI calls on behalf of that federate or directly manipulating federation state. Yes, No	RE	

Performance

RTIPerformance / HLAPerformanceTimeManagement				
Nr	Attribute	Information	Pres	GOLM
89	timeAdvancePerformances	HLA Time advancing performance. E.g. Time Advance Request Time Advance Grant / Second	N	
90	lookahead	Limitations to lookahead, e.g. Zero-lookahead support. Time-creep issues etc.	N	
91	retractPerformances	Time performance issues when retracting in an optimistic simulation, e.g. Retracts/sec., Retract latency etc.	N	
92	throughputAndLatency	Troughput and Latency information	N	
RTIPerformance / HLAPerformanceDataDistributionManagement				
Nr	Attribute	Information	Pres	GOLM
93	regionModificationPerformances	Time performance issues when modifying regions, e.g. number of modifications/second	N	

RTIPerformance / HLAPerformanceOwnershipManagement				
Nr	Attribute	Information	Pres	GOLM
94	acquisition Performances	Time performance issues when trying to acquire ownership. Latency includes acquiring federate, RTI and divesting federate.	N	
95	divestiture Performances	Time performance issues when trying to acquire ownership. Latency includes acquiring federate, RTI and divesting federate.	N	
RTIPerformance / HLAPerformanceObjectManagement				
Nr	Attribute	Information	Pres	GOLM
96	objectRegistration Performances	Time performance issues when registering objects, e.g. objects registered/second	N	
97	numberOfObjects Supported	Limitations on the number registered objects.	N	
98	scalingCharacteristics	How the federate/federation performs with increased number of objects.	N	
99	throughputAndLatency	(Attribute update and interaction frequencies are documented in SOM/FOM)	N	
RTIPerformance / HLAPerformanceDeclarationManagement				
Nr	Attribute	Information	Pres	GOLM
100	publishPerformances	Number of published object/interaction classes and publication time spent.	N	
101	subscribe Performances	Number of subscribed object/interaction classes and publication time spent.	N	
RTIPerformance / HLAPerformanceFederationManagement				
Nr	Attribute	Information	Pres	GOLM
102	maximumNumber Federates	Limitations on the number of federates supported in the federation.	N	
103	upscaling Characteristics	How the federation performs with increased number of federates.	N	

Platform information

platform				
Nr	Attribute	Information	Pres	GOLM
104	platformName	Full name of the Platform	R	
105	version	Full version information	R	
106	functionality	supercomputing, mainframe, server, workstation, desktop, handheld, realTime, embeddedSystem	NE	
107	scalability	connections, multitasking, multiprocessing	NE	
108	security	physical, denialOfService, passwordAttacks, spoofing, firewall	NE	
109	programming Languages	Eg. Assembly, Ada, Algol, C, C++, Cobol, Fortran, Java, Pascal, Perl, PL/I	N	
HWcapabilities				
Nr	Attribute	Information	Pres	GOLM
110	CPUType		R	
111	NumberOfCPU		R	
112	SpeedMHZ		R	
113	TotalRAM		N	
114	BitNumber	1, 2, 4, 8, 16, 32, 64	RE	
115	CPUDataBusWidth	4, 8, 16, 32, 64, 128, 256, 512	RE	
116	HDSIZEGB		N	
NetworkInterface				
Nr	Attribute	Information	Pres	GOLM
117	PortType		R	
118	NumberOfPort		R	

OS				
Nr	Attribute	Information	Pres	GOLM
119	name	Full name of the Operating System	R	S12
120	version	Version of the Operating System	R	
121	kind	Proprietary, openSourceCustom, openSourceUnix, openSourceBSDUnix, openSourceSysVUnix	RE	
122	bitsNumber	1, 2, 4, 8, 16, 32, 64, more	N	
123	programming Languages	Assembly, Ada, Algol, C, C++, Cobol, Fortran, Java, LISP, Pascal, Perl, PL/I, etc	N	S13 S14 S15

Network information

ShortPhysicalNetwork				
Nr	Attribute	Information	Pres	GOLM
124	networkType	Peer to peer, Ethernet, Token_Ring	RE	
125	networkLatency	ms	R	
126	networkJitter_ Maximum	ms	N	
127	networkJitter_Average	ms	N	
128	networkSecurity	Physical, Denial of service, password attacks, spoofing, firewall, encryption modules.	N	
129	networkFailure HandlingRecovery	Description of failure handling and recovery	N	
130	networkAddress	For Ethernet over TCP/IP, quad IP address (xxx.yyy.zzz.www)	R	
131	networkConnector	Hub, switch, router	RE	

RTI information

ShortRTI				
Nr	Attribute	Information	Pres	GOLM
132	HLAversion	IEEE1516 or HLA v1.3	R	S10
133	RTIVersion	RTI version	R	
134	APIavailability	Java, Ada, C++, IDL	N	
135	RTILogging	Indication if the RTI implementation supports some kind of logging capability.	N	
136	CertificationInformation	Description includes information on API, Platform, Compiler, Date and DoD Interpretations used when certifying asset HLA compliancy (if available)	N	
137	Limitations	Information on any other limitations on RTI implementation	N	

C Question list GOLM database

This appendix contains the question list used by the project “Familievorming simulators KL” to create the GOLM database [FAM]. As this project was performed in Dutch, the question list is also in Dutch. This information is organised according to specific tables including three columns:

- The first column indicates a serial number for reference purposes;
- The second column is a description of the information;
- The third column gives a reference to the serial number of the Euclid Asset Characterisation of Simulation Assets as outlined in Appendix B or to the added classes of chapter 3 (with additional letter).

Algemeen		
Nr	Description	RTP 1113
A1	Wat is de naam van de simulator? (Hierop waren 2 antwoorden mogelijk: de naam van de simulator zoals bekend bij DMKL en de naam van de simulator zoals die op de kazerne gebruikelijk is)	2
A2	Wat is de naam van de hoofdgebruiker?	
A3	Waar staat de simulator?	
A4	Wie is de huidige beheerder van de simulator?	10
A5	Wat is het telefoonnummer van de beheerder?	12
A6	Heeft de beheerder e-mail, zo ja wat is zijn e-mail adres?	13
A7	Wie is de fabrikant van de simulator? (Eventueel worden hier ook onder aannemers genoemd.) Waar is deze fabrikant gevestigd?	19
A8	Zijn er meerdere eigenaren van deze simulator?	
A9	Zijn er meerdere gebruikers dan alleen de KL?	
A10	Hoeveel van deze simulatoren zijn in bezit van de KL?	
A11	Wat is de plaats in het leertraject (4 antwoordcategorieën: 1=beginner; 2=gevorderd; 3=conversie; 4=refresher)	A1
A12	Kunt U in 1 zin een beschrijving van de simulator geven?	7
A13	Wat voor soort simulator is het? (5 antwoord categorieën: 1=bediening; 2=psychomotorisch; 3=procedure; 4=cognitief; 5=team)	A2
A14	Wat is de tijdsafloop (3 antwoord categorieën: 0=n.v.t.; 1= real time; 2=scheduled; 3= event-driven)	34??
A15	Wie verzorgt het technisch onderhoud?	
A16	Wie verzorgt het functionele onderhoud?	
A17	Wat is het bouwjaar van de simulator?	
A18	Welke eenheid wordt op de simulator getraind? (8 antwoord categorieën: 1=individueel; 2=bemannings; 3=peloton; 4=team; 5=bataljon; 6=brigade; 7=divisie; 8=legercorps)	A3
A19	Wat is het detailniveau van de simulatie? (6 antwoord categorieën: 1=fysisch; 2=systeem; 3=eenheid; 4=gevecht; 5=operatie; 6=campagne)	A4
A20	Wat is het functiegebied (10 antwoord categorieën: 1=commandovoering; 2=doelopsparing; 3=genie; 4=gewonden verzorging; 5=logistiek; 6=luchtverdediging; 7=manoeuvre; 8=verbindingen; 9=vuursteun 10=Optreden van verbonden wapenen)	A5
A21	Wat voor een soort simulator uitvoering is gebruikt? (3 antwoord categorieën: 1=off the shelf; 2=met aanpassingen; 3=custom made)	
A22	Staat de simulator in het veld of indoor?	
A23	Wordt er klassikaal of individueel lesgegeven op de simulator?	A6
A24	Is de simulator een deel van het werkelijke systeem een toevoeging aan het	

	systeem of een stand alone?	
A25	Draait de simulator in een netwerk of is het een stand-alone?	
A26	Is de simulator een full task of part task trainer?	A7
A27	Is de simulator een generieke simulator, multi-model of een specifieke simulator?	A8
A28	Is de simulator een low-end, medium-end of high-end simulator?	A9
A29	Is de simulator afhankelijk van data van buiten het eigen systeem?	
A30	Gaat er systeemdata naar buiten? (bijvoorbeeld prestatiematen)	

Simulatietechniek		
Nr	Description	RTP 1113
S1	Is het dynamisch model generiek of specifiek?	
S2	Hoe wordt het buitenbeeld geprojecteerd? (5 antwoord categorieën: 1=monitors; 2=collimator; 3=projectie; 4=HMD; 5=occulair)	
S3	Is de mockup specifiek of generiek?	
S4	Is het geluid eenvoudig of complex?	
S5	Heeft de simulator een moving base en zo ja hoeveel vrijheidsgraden?	
S6	Is de terreindatabase specifiek of generiek?	57?
S7	Is er een aparte IOS?	
S8	Is er een database modelleerstation en zo ja staat dat bij de fabrikant, is het in de simulator ingebouwd of staat het apart?	
S9	Is er een scenario modelleerstation en zo ja staat dat bij de fabrikant, is het in de simulator ingebouwd of staat het apart?	
S10	Voldoet de simulator aan Interoperabiliteitsstandaarden zoals SIMNET, DIS of HLA?	132 incompl
S11	Voldoet de database aan een van de volgende standaarden: 1=Open Flight; 2=SIF; 3=Inventor; 4=DWB; 5=DTAD; 6=DFAD; 7=DFED; 8=CTTB; 9=SEDRIS; 10=eigen	57
S12	Op wat voor een soort systeemsoftware draait de simulator en wie is de fabrikant van deze software?	119 (+120, 121)
S13	Wat voor een soort modelsoftware draait op de simulator en wie is de fabrikant van deze software?	123
S14	Wat voor een soort grafische software draait op de simulator en wie is de fabrikant van deze software?	123?
S15	Wat voor een soort scenariosoftware draait op de simulator en wie is de fabrikant van deze software?	123?
S16	Van wat voor een soort netwerkvorm maakt de simulator gebruik? (5 antwoord categorieën: 1=ethernet; 2=RS232; 3=CAN-bus; 4=Interbus 5=Wireless)	
S17	Welk netwerk protocol wordt er gebruikt? (3 antwoord categorieën: 1=TCP/IP; 2=UDP; 3=eigen)	
S18	Is de simulator geschikt voor een KL-brede infrastructuur?	
S19	Is de simulator standaard uitbreidbaar?	

Didactiek en Logistiek		
Nr	Description	RTP 1113
D1	Wat zijn globaal de leerdoelen?	A10
D2	Hoe ziet het ontwikkelingsleerplan eruit? (primitief of uitvoerig)	A11
D3	Hoe vindt prestatiebeoordeling plaats? Door de instructeur/observertrainer of automatisch of allebei?	A12
D4	Wanneer wordt de prestatie van de leerling beoordeeld, tijdens de training of achteraf?	A13
D5	Zijn de scenario's tijdens de training te beïnvloeden?	A14
D6	Hoeveel leerlingen trainen per jaar op de simulator?	A15
D7	Hoeveel simulatoren kan een instructeur tegelijkertijd bedienen?	A16
D8	Hoeveel lestijd besteed een leerling/cursist per cursus op de simulator?	A17
D9	Hoeveel procent van de cursustijd zit de cursist in de simulator?	A18
D10	Hoeveel leerlingen kijken er mee per les?	A19
D11	Hoelang duurt de opleiding voor instructeurs om op de simulator les te kunnen geven?	A20

Instructiefaciliteiten		
Nr	Description	RTP 1113
I1	Hoe vindt de registratie van lesresultaten plaats? (3 antwoordcategorieën: 1=schriftelijk; 2=handmatige invoer; 3=automatisch)	I1
I2	Vindt er een statische bewerkingen van de lesresultaten plaats?	I2
I3	Is er automatische prestatiebeoordeling en feedback? Zo ja is deze primitief of uitvoerig?	I3
I4	Is er auto instructie? Zo ja, is deze primitief of uitvoerig?	I4
I5	Is er een diagnose systeem? Zo ja, is deze primitief of uitvoerig?	I5
I6	Heeft de instructeur beschikking over een bird's eye view?	I6
I7	Kunnen er malfunctions ingevoerd worden? Zo ja, hoeveel en hoe worden deze ingevoerd: door de instructeur of in het scenario?	I7
I8	Heeft de simulator een record en replay functie?	I8
I9	Vindt er een klasmatige debriefing plaats?	I9
I10	Hoe is het scenario management? (2 antwoordcategorieën: 1=primitief; 2=uitvoerig)	I10

Kwaliteitsaspecten		
Nr	Description	RTP 1113
K1	Bestaat de basis van het programma van eisen uit een taak en/of trainingsanalyse?	K1
K2	Heeft er een toetsing aan specificaties plaatsgevonden (verificatie)	K2
K3	Heeft er toetsing aan normen plaatsgevonden (accreditatie)	K3
K4	Heeft er een subjectieve validatie van de simulator plaatsgevonden? Zo ja, was deze oppervlakkig of gestructureerd (eventueel auteur en rapport)	K4
K5	Heeft er een objectieve validatie van de simulator plaatsgevonden? Zo ja, was deze oppervlakkig of gestructureerd (eventueel auteur en rapport)	K5
K6	Wat is de effectiviteit per leerdoel zoals genoemd bij vraag 1 van het kopje didactiek en logistiek uitgedrukt in een rapportcijfer?	
K7	Welke deelsystemen zoals genoemd onder het kopje simulator techniek hebben een erg hoge effectiviteit en welke juist niet?	
K8	Welke instructiefaciliteiten hebben een erg hoge effectiviteit en welke juist niet?	
K9	Wat zijn Uw ideeën over verbeteringen aan de simulator?	

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One of the tasks of the Simulation Expertise Centre of the Royal Netherlands Army is the implementation of a Modelling and Simulation Repository. The Repository developed in the Euclid RTP 11.13 programme is preferred because of its possible NATO wide implementation. This document describes the installation and use of some Euclid RTP 11.13 tools. As these tools are prototypes all problems encountered during installation procedures and the solutions for these problems are captured. However, because of the prototype nature of the tools, they turned out to be unreliable and slow. Therefore acceptance by users would be very difficult. For now it is recommended not using these tools in the SEC working, but using a simple web-bases database instead.		
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